MCF 3M Opener

A ball is tossed upward from a cliff. The height of the ball above the water is modelled by $h(t) = -5t^2 + 10t + 40$ where h(t) is the height in metres and t is time in seconds.

a) What is the maximum height reached by the ball?

b) When does the ball hit the ground?

Feb 11-3:37 PM

MCF 3M Opener

$h(t) = -5t^2 + 10t + 40$

a) What is the maximum height reached by the ball?

$h(t) = -5(t^2 - 2t - 8)$

$h(t) = -5(t+2)(t-4)$

vertex

$-2 \quad 4$

$\frac{4+-2}{2} = \frac{2}{2} = \frac{1}{1}$

$-5(t+2)(t-4)$

$-5(1+2)(1-4)$

$-5(3)(-3)$

$= 45m$

When does the ball hit the ground?

At 4sec the ball hits the ground.

$h(t) = -5(t-4)(t+2)$

$= -5(4-4)(4+2)$

$= -5(0)(6)$

$= 0$

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3.4 Solve by Factoring

p156-163

zeros - x-intercepts

x values where graph crosses x axis

$y = 0$

roots - solution for a value

sometimes 0 but can be any value

Mar 6-8:00 AM

Solve

$f(x) = a(x-s)(x-t)$

i) $(x+7)(x-3) = 0$

$(x+7) = 0 \quad s = -7$

$(x-3) = 0 \quad t = +3$

ii) $0 = (2x-1)(3x+5)$

$(2x-1) = 0 \quad +\frac{1}{2}$

$(3x+5) = 0 \quad -\frac{5}{3}$

iii) $2x^2 + x - 15 = 0$

$2x^2 + 6x - 5x - 15 = 0$

$2x(x+3) - 5(x+3) = 0$

$(x+3)(2x-5) = 0$

$-3 \quad +\frac{5}{2}$

iv) $12x^2 = x + 6$

$12x^2 - x - 6 = 0$

$12x^2 - 9x + 8x - 6 = 0$

$3x(4x-3) + 2(4x-3)$

$(4x-3)(3x+2) = 0$

$\frac{3}{4} \quad -\frac{2}{3}$

Mar 6-2:08 PM

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#1, 2ace, 3b*, 4ace, 5ace

6ace, 7ace, 8

$(2x)(x-3)$

$2x = 0 \quad x - 3 = 0$

$0 \quad 3$

Mar 6-2:18 PM

3b)

$x = -4$ is a root

$2x^2 - 5x - 35 = 0$

$2(-4)^2 - 5(-4) - 35 = 0$

$2(16) + 20 - 35 = 0$

$32 + 20 - 35 = 0$

$52 - 35 = 0$

$17 = 0$

$LS \neq RS$

PROOFS

Oct 5-10:30 AM

$2x^2 - 9x - 5 = 0$

$2x^2 - 10x + 1x - 5 = 0$

$2x(x-5) + 1(x-5) = 0$

$(x-5)(2x+1) = 0$

$5 \qquad -\frac{1}{2}$

A	M
-9	-10
	$-10 \quad +1$

Oct 5-10:46 AM

Sep 28-7:52 AM